

## IN THE CLAIMS

Please cancel claims 9-10 and 17-18 without prejudice or disclaimer. Please amend claims 1-8, 14-16, 22-29, and 31-32 and add new claims 33-44 as set forth below:

1. (Currently amended) A method for driving an LCD (liquid crystal display) panel associated with  $i$  number of ~~consisting of~~ scan lines and  $j$  number of column lines, said  $i$  and  $j$  being positive integers not less than 2, the method ~~arranged in rows and columns~~ respectively, comprising the steps of:

storing ~~data to be displayed on the LCD panel in a display data memory;~~

partitioning the scan lines into a plurality of scan blocks, each scan block containing  ~~$m$~~  number of scan lines;

~~sequentially selecting each scan block, activating multiple scan lines within the scan block;~~

~~concurrently outputting from the display data memory  $m$  number of display data items to be displayed in adjacent rows along the same column on the LCD panel; and~~

~~generating a column signal that would produce a display on the LCD panel according to the display data when multiple rows are selected~~

concurrently retrieving display data from a scan block of a display data memory, the display data memory arranged in a matrix corresponding to the  $i$  number of the scan lines and the  $j$  number of the column lines and the scan block corresponding to  $m$  number of the scan lines and said  $j$  number of the column lines, said  $m$  being a positive integer not less than 2 and not more than  $i$ ; and

19 generating column display signals by modifying the concurrently retrieved display data,  
20 the column display signals generating a display on the LCD panel in accordance  
21 with the concurrently retrieved display data.

1 2. (Currently amended) The method of claim 1, wherein ~~the step of~~ modifying the  
2 concurrently retrieved display data ~~selecting each scan block further~~ comprises ~~the step of~~  
3 applying orthogonal function data to the concurrently retrieved display data to determine  
4 mismatches ~~said multiple scan lines.~~

1 3. (Currently amended) The method of claim 2, wherein said step of ~~generating a~~  
2 ~~column data signal~~ applying orthogonal function data comprises the step of:  
3 performing exclusive OR operations ~~operation~~ between ~~said display data items~~ said  
4 concurrently retrieved display data and said orthogonal row function data ~~to~~  
5 ~~calculate mismatch numbers.~~

1 4. (Currently amended) The method of claim 3, wherein said step of generating a  
2 ~~column signal~~ column display signals further comprises the step of:  
3 decoding results of the exclusive OR operations to determine mismatch numbers ~~said~~  
4 ~~mismatches to calculate mismatch numbers.~~

1 5. (Currently amended) The method of claim 4, wherein said step of generating a  
2 ~~column signal~~ column display signals further comprises the step of:  
3 shifting the data levels of the mismatch numbers to different data levels.

1 6. (Currently amended) The method of claim 4 ~~claim 5~~, wherein said step of  
2 generating a ~~column signal~~ column display signals further comprises the step of:

3 selecting ~~a voltage level~~ voltage levels corresponding to the mismatch numbers from k  
4 [[k]] number of voltage levels.

1 7. (Currently amended) The method of claim 6 ~~claim 4~~, wherein said m [[m]] is 3.

1 8. (Currently amended) The method of claim 7, wherein said k [[k]] is 2.

1 9-10 (Canceled)

1 11. (Original) The method of claim 1, wherein the LCD panel is an STN LCD  
2 panel.

1 12. (Original) The method of claim 1, wherein said display data memory stores data  
2 for displaying monochrome in gray scale.

1 13. (Original) The method of claim 1, wherein said display data memory stores  
2 RGB data for displaying colors.

1 14. (Currently amended) A driver for driving an LCD (liquid crystal display) panel  
2 associated with i number of ~~consisting of~~ scan lines and j number of column lines, said i and j  
3 being positive integers not less than 2, the driver arranged in rows and columns respectively,  
4 comprising:

5 a display data memory ~~having rows and columns of cells~~ for storing display data, the  
6 display data memory arranged in a matrix corresponding to the i number of the  
7 scan lines and the j number of the column lines and concurrently outputting the  
8 display data corresponding to a scan block corresponding to m number of the scan  
9 lines and said j number of the column lines, said m being a positive integer not  
10 less than 2 and not more than i ~~partitioned into blocks of m number of scan lines~~  
11 ~~and for concurrently outputting m number of data items be displayed in a selected~~  
12 ~~block of scan lines and a selected column line; and~~

13 a column signal circuit for generating column display signals by modifying the  
14 concurrently output display data, the column display signals generating a display  
15 on the LCD panel in accordance with the concurrently output display data  
16 calculating column signals that generates the same display by selecting multiple  
17 rows.

1 15. (Currently amended) The driver of claim 14, wherein the display data memory  
2 is a RAM (Random Access Memory).

1 16. (Currently amended) The driver of claim 14, wherein  $m$  [[ $m$ ]] is 3.

1 17-18. (Canceled)

1 19. (Original) The driver of claim 14, wherein said display data memory stores data  
2 for displaying black and white in gray scale.

1 20. (Original) The driver of claim 14, wherein said display data memory stores  
2 RGB data for displaying colors.

1 21. (Original) The driver of claim 14, wherein said LCD panel is an STN LCD  
2 panel.

1 22. (Currently amended) The driver of claim 14, wherein said column signal circuit  
2 comprises:

3 an XOR (exclusive OR) block ~~having multiple~~ including  $j$  number of XOR sets of a  
4 ~~predetermined number of XOR gates for performing exclusive OR operations~~  
5 between the concurrently output display data and orthogonal function data to  
6 determine mismatches, each XOR set including  $m$  number of XOR gates  
7 corresponding to the  $m$  number of the scan lines in each scan block for performing

8 ~~exclusive OR operation between the m number of data items and orthogonal~~  
9 ~~function data to determine mismatches.~~

1 23. (Currently amended) The driver of claim 22, wherein said column signal circuit  
2 further comprises:

3 a decoder block ~~having multiple~~ including j number of decoders, the decoders for  
4 decoding results of the exclusive OR operations to determine mismatch numbers  
5 ~~each decoder for determining a mismatch number based the result of mismatches-~~  
6 ~~from said each XOR set.~~

1 24. (Currently amended) The driver of claim 23, wherein said column signal circuit  
2 further comprises:

3 a level-shifter block ~~having multiple~~ including j number of level shifters, the level shifters  
4 for shifting the data levels of the mismatch numbers to different data levels each  
5 ~~level shifter for outputting a data level translated from said each decoder.~~

1 25. (Currently amended) The driver of claim 24, wherein said column signal circuit  
2 further comprises:

3 a voltage selector block ~~having multiple~~ including j number of voltage selectors, the  
4 voltage selectors for selecting voltage levels corresponding to the mismatch  
5 numbers each voltage selector for selecting a voltage for the output of said each  
6 ~~level shifter.~~

1 26. (Currently amended) The driver of claim 25, wherein m ~~[[m]]~~ is 3.

1 27. (Currently amended) The driver of claim 26, wherein each of said level shifters  
2 ~~said each level shifter~~ is a 1-bit level shifter.

1           28.   (Currently amended)   The driver of claim 27, wherein ~~said voltage selector block~~  
2   each of said voltage selectors selects one voltage level from 2 voltage levels.

1           29.   (Currently amended)   A liquid crystal display, comprising:

2   a LCD (liquid crystal display) panel associated with  $i$  number of ~~consisting of~~ scan lines  
3                   and  $j$  number of column lines, said  $i$  and  $j$    being positive integers not less than 2;  
4                   ~~arranged in rows and columns respectively,~~

5   a row driver for selecting the scan lines; ~~and~~

6   a column driver for driving the column lines; ~~comprising:~~

7   a display data memory ~~having rows and columns of cells for storing display data, the~~  
8                   display data memory arranged in a matrix corresponding to the  $i$  number of the  
9                   scan lines and the  $j$  number of the column lines and concurrently outputting the  
10                  display data corresponding to a scan block corresponding to  $m$  number of the scan  
11                  lines and said  $j$  number of the column lines, said  $m$  being a positive integer not  
12                  less than 2 and not more than  $i$  partitioned into blocks of  $m$  number of scan lines  
13                  ~~and for concurrently outputting  $m$  number of data items be displayed in a selected~~  
14                  ~~block of scan lines and a selected column line; and~~

15   a column signal circuit for generating column display signals by modifying the  
16                  concurrently output display data, the column display signals generating a display  
17                  on the LCD panel in accordance with the concurrently output display data  
18                  ~~calculating column signals that generates the same display by selecting multiple~~  
19                  rows.

1           30.   (Original)   The liquid crystal display of claim 29, wherein the LCD panel is an  
2   STN LCD panel.

1 31. (Currently amended) The liquid crystal display of claim 29, wherein  $m$  ~~[[m]]~~ is

2 3.

1 32. (Currently amended) The liquid crystal display of claim 29, wherein the column  
2 signal circuit comprises:

3 an XOR (exclusive OR) block ~~having multiple~~ including  $j$  number of XOR sets ~~of a~~  
4 ~~predetermined number of XOR gates for performing exclusive OR operations~~  
5 ~~between the concurrently output display data and orthogonal function data to~~  
6 ~~determine mismatches~~, each XOR set including  $m$  number of XOR gates  
7 corresponding to the  $m$  number of the scan lines in each scan block ~~for performing~~  
8 ~~exclusive OR operation between the  $m$  number of data items and orthogonal~~  
9 ~~function data to determine mismatches;~~

10 a decoder block ~~having multiple~~ including  $j$  number of decoders, the decoders for  
11 decoding results of the exclusive OR operations to determine mismatch numbers  
12 ~~each decoder for determining a mismatch number based the result of mismatches~~  
13 ~~from said each XOR set;~~

14 a level-shifter block ~~having multiple~~ including  $j$  number of level shifters, the level shifters  
15 for shifting the data levels of the mismatch numbers to different data levels ~~each~~  
16 ~~level shifter for outputting a data level translated from said each decoder; and~~

17 a voltage selector block ~~having multiple~~ including  $j$  number of voltage selectors, the  
18 voltage selectors for selecting voltage levels corresponding to the mismatch  
19 numbers ~~each voltage selector for selecting a voltage for the output of said each~~  
20 ~~level shifter.~~

1           33.   (New) The method of claim 1, wherein said  $m$  number of the scan lines of the  
2 scan block are adjacent to one another.

1           34.   (New) The method of claim 3, wherein the exclusive OR operations are  
2 performed on said concurrently retrieved display data without storing said concurrently retrieved  
3 display data in data latches prior to the exclusive OR operations.

1           35.   (New) The method of claim 5, wherein the data levels of the mismatch numbers  
2 are shifted without storing the mismatch numbers in output latches prior to the step of shifting  
3 the data levels of the mismatch numbers.

1           36.   (New) The driver of claim 14, wherein said  $m$  number of the scan lines of the  
2 scan block are adjacent to one another.

1           37.   (New) The driver of claim 22, wherein the XOR block is directly coupled to the  
2 display data memory to perform the exclusive OR operations on said concurrently output display  
3 data without storing said concurrently output display data in data latches prior to the exclusive  
4 OR operations.

1           38.   (New) The driver of claim 24, wherein the level-shifter block is directly coupled  
2 to the decoder block to shift the data levels of the mismatch numbers to different data levels  
3 without storing the mismatch numbers in output latches.

1           39.   (New) The liquid crystal display of claim 29, wherein said  $m$  number of the scan  
2 lines of the scan block are adjacent to one another.

1           40.   (New) The liquid crystal display of claim 32, wherein the XOR block is directly  
2 coupled to the display data memory to perform the exclusive OR operations on said concurrently  
3 output display data without storing said concurrently output display data in data latches prior to  
4 the exclusive OR operations.



1           41.   (New)   The liquid crystal display of claim 32, wherein the level-shifter block is  
2 directly coupled to the decoder block to shift the data levels of the mismatch numbers to different  
3 data levels without storing the mismatch numbers in output latches.

1           42.   (New)   A method for driving an LCD (liquid crystal display) panel, the method  
2 comprising the steps of:

3           concurrently retrieving display data stored in a scan block of a display data memory, the  
4           scan block being a part of the display data memory and corresponding to a  
5           plurality of scan lines and a plurality of column lines associated with the LCD  
6           panel; and

7           generating column display signals by modifying the concurrently retrieved display data,  
8           the column display signals generating a display on the LCD panel in accordance  
9           with the concurrently retrieved display data.

1           43.   (New)   A driver for driving an LCD (liquid crystal display) panel, comprising:  
2           a display data memory for storing display data, the display data memory concurrently  
3           outputting the display data stored in a scan block of the display data memory, the  
4           scan block being a part of the display data memory and corresponding to a  
5           plurality of scan lines and a plurality of column lines associated with the LCD  
6           panel; and

7           a column signal circuit for generating column display signals by modifying the  
8           concurrently output display data, the column display signals generating a display  
9           on the LCD panel in accordance with the concurrently retrieved display data.

1           44.   (New)   A liquid crystal display, comprising:

2 a LCD (liquid crystal display) panel;

3 a row driver for selecting scan lines associated with the LCD panel;

4 a column driver for driving the column lines associated with the LCD panel;

5 a display data memory for storing display data, the display data memory concurrently

6 outputting the display data stored in a scan block of the display data memory, the

7 scan block being a part of the display data memory and corresponding to a

8 plurality of the scan lines and a plurality of the column lines; and

9 a column signal circuit for generating column display signals by modifying the

10 concurrently output display data, the column display signals generating a display

11 on the LCD panel in accordance with the concurrently retrieved display data.